

>>Optical Power and Energy Meters >>Pyroelectric Energy Sensors (C-Series)

Pyroelectric Energy Sensors (C-Series)

- ▶ Energy Ranges Covering 10 μ J to 15 J
- ▶ Wavelength Ranges Covering 185 nm to 25 μ m
- ▶ Two Coating Options Available
- ▶ New Red C-Series Connector Design for Quick Exchange

Sensors with Ceramic Coating for High Energy Densities



Sensors with Standard Coating



Related Items

Other Power Meter Sensors



Touch Screen Power and Energy Meter



Power and Energy Meters



Slit Beam Profiler



Overview | Specs | Absorption Graphs | Pin Diagrams | Console Selection | Sensor Selection | Feedback

Features

- For Pulsed Applications Over a Wide Wavelength and Energy Range
- Individually Calibrated with NIST- and PTB-Traceable Certificate of Calibration
- BNC Connector for Direct Use with Oscilloscopes
- Compatible with our [C-Series Power Meters](#) via BNC to C-Series Adapter
- Electrically Isolating Post Adapters Included

Thorlabs' Pyroelectric Energy Meter Sensors are sensitive to wavelengths from 185 nm to 25 μ m and together span the energy range from 10 μ J to 15 J. All of these sensors provide a flat response over a large wavelength range. The ES220C and ES245C feature a ceramic coating that is specifically designed for lasers with high energy densities requiring high damage thresholds.

Compatibility

All the sensors listed here are compatible with the [PM200](#), [PM100D](#), [PM320E](#), and [PM100USB](#) [see [Power Meter Compatibility Chart](#) (Excel spreadsheet)]. Please note that they are not compatible with the PM100A. Alternatively, the sensors can be connected directly to an oscilloscope with a 1 M Ω input resistance via the BNC connector. To accommodate higher repetition rates when connected to oscilloscopes, the load resistance can be reduced. Calibration value for both 1 M Ω and 100 k Ω resistors are given with the sensor certificate of calibration.

The bottom of the sensor head has an 8-32 mounting hole. Since the heads are very sensitive to ground loops and electrical noise, we recommend attaching the heads to the included electrically isolating post adapters, which provide direct compatibility with either imperial or metric [Ø1/2" \(Ø12.7 mm\) Posts](#). The ES120C and the ES220C can also be mounted to our [30 mm Cage System](#) via the four 4-40 threaded holes on the front, although this mounting option does not provide electrical isolation.

Calibration

Each sensor head is individually calibrated and is shipped with a NIST- and PTB-Traceable Calibration Certificate. The calibration and identification data is stored in the BNC to C-Series adapter and is downloaded automatically when connected to the console.

Thorlabs offers specific recalibration services for all our pyroelectric power sensors. To ensure accurate measurements, we recommend recalibrating the sensors annually. Please contact [Tech Support](#) for recalibration information and pricing. Expedited sensor calibration is also available.

Type	Broadband	Ceramic
Energy Range	10 μ J - 2 J	500 μ J - 15 J
Wavelength Range	0.185 - 25 μ m	0.185 - 25 μ m
Coating	Black Broadband Coating	Ceramic Coating with High Damage Thresholds
Typical Application	Wavelength-Independent Energy Measurements	High Energy Densities
Fiber Adapters	No	No

Pyroelectric Energy Sensors

- For General Purpose and High Energy Optical Pulse Measurements
- Black Broadband Coating with Flat Response Over a Wide Wavelength Range
- Ceramic Coating with High Damage Thresholds for High-Energy-Density Lasers
- Ø11 mm - Ø45 mm Sensor Area
- Comes with BNC Connector for Oscilloscope Use and a Sensor Adapter for Use with the [PM200](#), [PM100D](#), [PM100USB](#), and [PM320E](#) Consoles

The ESxxxC Standard and High Energy Pyroelectric Sensors are designed to measure pulsed coherent and incoherent sources. Pyroelectric sensors are not suited for CW measurements, as they convert energy from light pulses into voltage pulses. A black broadband or ceramic coating is used for low or high power measurements, respectively. Large sensor areas from Ø11 mm - Ø45 mm allow easy alignment. The energy sensors features BNC connectors for use with an oscilloscope, as well as standard power meter connectors which contain NIST and PTB-traceable calibration data.



[Click to Enlarge](#)
ES220C Sensor Mounted in a 30 mm Cage System

Item #	ES111C	ES120C	ES145C	ES220C	ES245C
Sensor Image					

Pyroelectric Energy Sensors (C-Series)

(Click the Image to Enlarge)



Aperture Size	Ø11 mm	Ø20 mm	Ø45 mm	Ø20 mm	Ø45 mm
Wavelength Range	0.185 - 25 µm				
Energy Range	10 µJ - 150 mJ	100 µJ - 500 mJ	500 µJ - 2 J	500 µJ - 3 J	1 mJ - 15 J
Detector Type	Pyroelectric Energy Sensor with Black Broadband Coating			Pyroelectric Energy Sensor with Ceramic Coating	
Resolution	100 nJ	1 µJ	1 µJ	25 µJ	50 µJ
Linearity	±1%				
Measurement Uncertainty	±5% @ 0.185 - 25 µm				
Housing Dimensions	Ø36 mm x 16 mm	Ø50 mm x 18 mm	Ø75 mm x 21 mm	Ø50 mm x 18 mm	Ø75 mm x 21 mm
Cable Length	1.5 m				
Post Mounting	8-32 Mounting Thread, 8-32 and M4 Insulating Adapters Included				
Cage Mounting	N/A	Four 4-40 Threadings for 30 mm Cage Systems	N/A	Four 4-40 Threadings for 30 mm Cage Systems	

Based on your currency / country selection, your order will ship from Newton, New Jersey

+1	Qty	Docs	Part Number - Universal	Price	Available / Ships
	<input type="text"/>		ES111C Pyroelectric Energy Sensor, Broadband Coating, 0.185 - 25 µm, 150 mJ	\$1,240.00	✓ Today
	<input type="text"/>		ES120C Pyroelectric Energy Sensor, Broadband Coating, 0.185 - 25 µm, 500 mJ	\$1,290.00	✓ Today
	<input type="text"/>		ES145C Pyroelectric Energy Sensor, Broadband Coating, 0.185 - 25 µm, 2 J	\$1,490.00	✓ Today
	<input type="text"/>		ES220C Pyroelectric Energy Sensor, Ceramic Coating, 0.185 - 25 µm, 3 J	\$1,550.00	✓ Today
	<input type="text"/>		ES245C Pyroelectric Energy Sensor, Ceramic Coating, 0.185 - 25 µm, 15 J	\$1,800.00	✓ Today

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